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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/824,896      | 04/15/2004  | Shuichi Hashimoto    | 0941.70322          | 7586             |

7590 04/24/2006

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EXAMINER

TERESINSKI, JOHN

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2858

DATE MAILED: 04/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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|                              |                               |                                  |  |
|------------------------------|-------------------------------|----------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/824,896 | Applicant(s)<br>HASHIMOTO ET AL. |  |
|                              | Examiner<br>John Teresinski   | Art Unit<br>2858                 |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 December 2005.  
 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.  
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 12-14 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
 6) ☒ Claim(s) 12-14 is/are rejected.  
 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.  
 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:  
         1. ☒ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 12 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,929,700 to Fuller et al..

Regarding claim 12, Fuller et al. disclose a cascade notch system having a plurality of notch filters combined so as to have a predetermined notch filter characteristic (column 6 lines 56-60), the notch filters having different frequency characteristics (column 6 lines 16-22, Fig. 4) and including at least two notch filters each exhibiting asymmetrical gain changes on opposite sides of a cutoff frequency thereof (ie. a different gain value on opposite sides of each cutoff frequency as shown in Fig. 4, further the graphical representation shows two notches representing the plurality of notch filters and each notch has a different gain value on opposite sides of the notch meeting the claimed limitation of asymmetrical gain change).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,929,700 to Fuller et al. in view of Joshi et al. ("Design of IIR notch filters with different passband gains").

Regarding claims 13, Fuller et al. disclose a first notch filter having a first cutoff frequency ( $f_{n1}$ ), a second notch filter having a second cutoff frequency ( $f_{n2}$ ) lower than said first cutoff frequency, and a third notch filter having a third cutoff frequency ( $f_{n3}$ ) higher than said first cutoff frequency (column 5 lines 18-37, Fig. 3-4, elements 150, 152, 154). Fuller et al. also discloses a different gain value on opposite sides of a cutoff frequency (Fig. 4) but does not explicitly teach the first filter with symmetrical gain changes below and above the first frequency, the second notch filter exhibiting a smaller amount of gain changes and a smaller maximum gain at a frequency below the second cutoff frequency than an amount of gain changes and maximum gain at frequencies above the second cutoff frequency or the third notch filter with a larger amount of gain changes and a larger maximum gain at frequencies below the third cutoff frequency than an amount of gain changes and a a maximum gain at frequencies above the third cutoff frequency. Joshi et al. disclose that it is well known and within ordinary skill in the art to design notch filters with asymmetric gain changes (Fig. 1), symmetrical gain changes (Fig. 3) and notch filters with a different amount of gain changes and smaller or larger gain below/above a cutoff frequency than above/below a cutoff frequency (paragraph 11, Fig. 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include a different amount of gain changes and smaller or larger gain below/above a cutoff frequency than

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above/below a cutoff frequency as taught by Joshi et al. into Fuller et al. for the added desirability of tailoring notch filters to a specific application.

Regarding claim 14, Fuller et al. disclose a fourth notch filter (column 5 lines 18-37).

### ***Response to Arguments***

Applicant's arguments filed December 28, 2005 have been fully considered but they are not persuasive.

In response to applicants arguments that Fuller et al. does not disclose at least two notch filters exhibiting asymmetrical gain changes on opposite sides of a cutoff frequency thereof and that each of the filters is symmetric, the examiner disagrees. Applicant is referred to Fuller et al. (Fig. 4), which clearly shows the magnitude response of a plurality of filters. The gain on opposite sides of the two cutoff frequencies is reduced providing an asymmetric response and meeting the claim limitations of claim 12.

Regarding claim 13, Joshi et al. is provided for further justification that adjusting passband gains is well known and within the skill of ordinary art.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Teresinski whose telephone number is (571) 272-2235. The examiner can normally be reached on M-F 8:30 - 5:00.

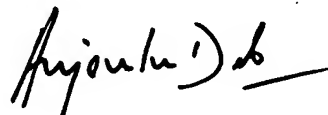
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571) 272-2399. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JT

JT

April 11, 2006



ANJAN DEB  
PRIMARY EXAMINER